17IS72

USN

Seventh Semester B.E. Degree Examination, June/July 2023
Software Architecture and Design Patterns

Time: 3 hrs.   Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1 a. What is Design Pattern? Explain how to use design pattern? **(10 Marks)**
   b. Define object oriented development? Explain the key concepts of object oriented design. **(10 Marks)**

OR

2 a. How does a design pattern help? How to select a design pattern? **(10 Marks)**
   b. Explain briefly, how design patterns solve design problems. **(10 Marks)**

Module-2

3 a. What is Use-Case Analysis? Draw neat use case diagram for library system and also explain use case Register New member of Library information system. **(10 Marks)**
   b. Write the use cases for the following :
      i) Adding new books to library   ii) Book checkout **(10 Marks)**

OR

4 a. Explain various activities involved in analysis phase. What are functional requirement? **(10 Marks)**
   b. Briefly explain conceptual classes and the relationship among them in a Library information system. **(10 Marks)**

Module-3

5 a. Explain the applicability and structure of an adapter pattern. **(10 Marks)**
   b. Explain intent, motivation, Applicability, Structure participants, Collaboration consequences and Implementation of Decorator pattern. **(10 Marks)**

OR

6 a. Explain the issues to be considered while implementing the decorator pattern. Also write the merits and demerits of decorator pattern. **(10 Marks)**
   b. What do you mean by part-whole hierarchies? Write the implementation steps for part-whole pattern. **(10 Marks)**

Module-4

7 a. With neat diagrams, explain MVC architecture and alternative view of the MVC architecture. **(10 Marks)**
   b. Draw and explain the sequence diagram for adding a Label. **(05 Marks)**
   c. Mention the use case table for select an Item and change font. **(05 Marks)**

OR

8 a. Define the controller. Explain the steps involved in defining the controller. **(10 Marks)**
   b. Describe the implementation of view class and also explain the issues needed to be addressed in implementing UNDO operations. **(10 Marks)**

Module-5

9 a. Explain the architecture of client/server systems. **(10 Marks)**
   b. Describe the difficulties in accessing objects in a different JVM. **(10 Marks)**

OR

10 a. Explain the process of implementing a remote Interface and passing of remote objects as references. **(10 Marks)**
    b. Explain deploying the library system in world wide web and also explain state transition diagram for logging in. **(10 Marks)**

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